FIMDP 2013

DEPT OF COMMUNITY MEDICINE
SRM MEDICAL COLLEGE, SRM UNIVERSITY
&
UNSW AUSTRALIA

9TH & 10TH JAN 2013
Primary Healthcare in India
A case study of
Technology Enabled Healthcare Services
INDIA MUST INCREASE OUTPATIENT VISITS

**Annual outpatient contacts per person**

<table>
<thead>
<tr>
<th>Country</th>
<th>Annual Contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>2.2</td>
</tr>
<tr>
<td>Canada</td>
<td>6</td>
</tr>
<tr>
<td>UK</td>
<td>5.4</td>
</tr>
<tr>
<td>Italy</td>
<td>6</td>
</tr>
<tr>
<td>Germany</td>
<td>7</td>
</tr>
<tr>
<td>France</td>
<td>6.5</td>
</tr>
<tr>
<td>Denmark</td>
<td>4.1</td>
</tr>
</tbody>
</table>

**Key insights for India**

- Total outpatient visits needed may be 4.5 – 5.0 billion, or 3.8 – 4.2 per person
- India must increase outpatient visits by 1.9 – 2.4 billion
- Reasons for gap
  - Lack of access
  - Unaffordable
  - Low health seeking behavior
- Unqualified/informal providers address part of this gap

Source: NSSO 60th Round 2004; NCMH 2005; Health for All database (HFA-DB) WHO Regional Office for Europe (www.euro.who.int/hfadb); WHO Regional Office of the Americas (www.paho.org/english/dd/ais/coredata.htm)
THREE DIMENSIONS OF DISPARITY

SPECIALISTS/DOCTORS

• 63% shortage of specialists in Community Health Centres
• Lack of accountability – issues such as absenteeism

ECONOMICS

• 66% of India’s total health expenditure is out of pocket
• Poor access to health information results in low quality expenditure

PHYSICAL ACCESS

• Low population density results in poor health facility coverage
• NRHM* standards do not address area coverage

Source: RHS Bulletin, March 2010
WHO National Health Accounts, 2008
URBAN – RURAL DISPARITIES

Urban-rural inequity in physicians and hospital beds

<table>
<thead>
<tr>
<th></th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>72%</td>
<td>28%</td>
</tr>
<tr>
<td>Physicians</td>
<td>74%</td>
<td>26%</td>
</tr>
<tr>
<td>Government</td>
<td>68%</td>
<td>32%</td>
</tr>
<tr>
<td>Hospital Beds</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Disparities in physician density

- With physician density of 1.4 per 1,000, urban India is on par with Australia (1.0), Singapore (1.5), Korea (1.7) and New Zealand (2.1)

- With physician density of 0.2 per 1,000, rural India is lagging behind with Afghanistan (0.2), Botswana (0.4), Sudan (0.3) and Zimbabwe (0.2)

Source: ‘Revitalizing rural healthcare delivery’ Indian Journal of Community Medicine; WHOSIS 2010
DRIVERS OF RURAL HEALTH ISSUES

POOR RURAL HEALTHCARE

PHYSICAL ACCESS TO HEALTHCARE
- Difficult terrain
- Large out-of-pocket costs
- Low HCW density

AVAILABILITY OF DOCTORS
- Lack of specialists
- Large rural areas

ACCESS TO HEALTH INFORMATION
- Low health seeking behavior
- Lack of standards
- Illiteracy

*HCW: healthcare worker
COMMON HEALTH SCENARIO IN RURAL INDIA

- Acute Minor Ailments
- Pregnancy Monitoring
- Child Health
- Chronic Diseases
- Accidents
CORE PRINCIPLES OF PIRAMAL-HMRI

MISSION

• To improve access to and quality of healthcare services for vulnerable groups

1. Saturation
Services must reach everyone in coverage area

2. Synergy
All programs work together and with government systems

3. Systems
Technology & processes

4. Service Orientation
Patient’s experience with service is critical for confidence in health systems

5. Scale
Shared resources and cost optimization

6. Speed
Quick impact → visible intent
HMRI was created as a Public-Private *not for profit* Partnership.

**Government**
- Infrastructure
- Scale
- Funds

**Not for profits**
- Innovative solutions
- Management practices
- Technology orientation

- Innovative solutions
- Management practices
- Technology orientation
PIRAMAL-HMRI’S CURRENT SOLUTION STACK

Health Information Helpline
- 24x7 free-of-cost non-emergency 104 health helpline supported by algorithms and disease summaries
- Andhra Pradesh
- Assam
- Rajasthan
- Maharashtra

Mobile Health Services
- Once-a-month fixed-date primary health service for rural populations
- Chronic diseases, maternal and child health and minor ailments
- Andhra Pradesh
- Assam

Telemedicine Services
- Specialist services provided by connecting remote populations to urban doctors
- Six PHCs in AP
- Araku Valley, AP

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HEALTH INFORMATION HELPLINE – 104 HEALTH ADVICE CALL CENTER, MAHARASHTRA
HEALTH INFORMATION HELPLINE

Objectives

• To provide medically validated non-emergency health advice, directory information, counseling and complaint registry services
• To reduce the minor ailment load on public health facilities
• To reduce the financial burden of healthcare on the poor

Project Locations

• Assam, 50 seats (Nov 2010 – present): citizen call center
• Maharashtra, 10 seats (Jan 2012 – present): health worker call center
• Rajasthan, 20 seats (Nov 2011 – present): citizen call center
• Andhra Pradesh, 400 seats (Feb 2007 – Sep 2011): citizen call center
HEALTH INFORMATION HELPLINE

*HMRI championed 104 as the number for health helplines across India

**Services**
- Health advice
- Counseling
- Directory information
- Service improvement
- Monitoring

**Benefits**
- 24×7 104 health information for population
- Confidential counseling
- Grievance redressal
- Early warning system and first port-of-call regarding epidemics and disasters
- Empowered rural healthcare providers
- Reduced minor ailment load on public health system
HEALTH INFORMATION HELPLINE | HEALTH WORKER CENTER CALL FLOW

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eSWASTHYA | PROCESS FLOW

1. Patient Registration
2. PSS calls the contact center with patient history
3. Medical triage through clinical decision support system
4. Patient history sent to doctor in contact center for approval
5. Review of patient history
6. Doctors approval
7. Paramedic conveys thru SMS prescription to PSS
8. Based on SMS prescription, medicine dispensed

Piramal eSwasthya Process Flow

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HIHL | IMPACT

Health Information Helpline

- Responded to nearly 60 million calls
- Averted four million outpatient visits
- Saved 250,000 doctor days
- Spent nearly 12,000 days counseling callers
Bikaner has a surplus of Sub Centres (green) and just a 3% shortage of Primary Health Centres (yellow), but access is difficult because of the sparse population density.
MOBILE HEALTH SERVICES

Objectives

• To provide primary health services, with a focus on maternal and child health and chronic diseases, to villages on a fixed date every month
• To provide healthcare access to under served/un-served populations
• To reduce the financial burden of healthcare on the poor/disadvantaged

Project Locations

• Assam, 78 vans (Feb 2011 – present): paramedics
• Orissa, 2 vans (Oct 2012 – present): doctor, expanded services
• Rajasthan, 22 vans (Oct/Nov 2012 – present): doctor, expanded services
• Andhra Pradesh, 475 vans (Feb 2009 – Dec 2010): paramedics
MOBILE HEALTH SERVICES

* Focus on chronic diseases, maternal and child health and minor ailments
* Platform for delivery of additional services (e.g. WDF project)

**Services**
- Screening/lab tests
- Referrals
- Patient education
- Prescriptions
- Monitoring

**Benefits**
- Medical services at patients’ doorsteps
- Identification, treatment and monitoring of commonly prevalent chronic diseases
- Augmented quality of patient profile at Primary Health Centres
- Near real-time information flow from field to policy makers for effective evidence-based decision-making
- Platform for delivery of additional national and state government health schemes
TELEMEDICINE SERVICES

Objectives

• To provide specialist healthcare services to the remotely-located rural poor
• To strengthen the primary health center
• To reduce the financial burden of healthcare on the poor

Project Locations

• Six Primary Health Centres in Andhra Pradesh
• Asara© Telehealth Services, Araku Valley, Andhra Pradesh (Oct 2010 – present)
• Assam, 26 diabetes-related centers (to launch Dec 2012)
TELEMEDICINE SERVICES

Services

- Screening/lab tests
- Specialist consultation
- Patient education
- Prescriptions
- Monitoring

Benefits

- Specialist services for population near patients’ doorsteps
- Reduced load of complex illnesses on public health system
- Augmented quality of patient profile at Community Health Centres
- High quality referral system
- Creation of evidence-based electronic health records
Asara© Telehealth Services
(Originally funded by MacArthur Foundation, currently funded by HMRI)
Provides MCH services to tribal women in Araku Valley, AP, through:

- Health outreach and education
- Training traditional birth attendants
- Videoconference consultations with an OB/GYN specialist.

Travel by motorcycle and/or foot
Referred by field paramedic team and transported by jeep

Videoconferencing

Pregnant Women in Tribal Habitations

Field Paramedic Team

Asara© Telehealth Center

OB/GYN in Hyderabad
Asara© Telehealth Services

- Every ANC was monitored at least six times during her antenatal period
- Every PNC was monitored at least two times during her postnatal period
- Institutional deliveries increased by 56%
- Maternal mortality ratio decreased by 42%
- Neonatal mortality ratio decreased by 48%
### Chronic Disease Questionnaire

<table>
<thead>
<tr>
<th>Question</th>
<th>Option 1</th>
<th>Option 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypertension</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD 2.1 Do you have excessive thirst?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.2 Do you have excessive appetite?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.3 Are you passing frequent urine?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.4 Is your wound not healing properly?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.5 Is there any sudden loss of vision? (Decreased vision)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.6 Is there a family history of diabetes?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.7 Are you using any drugs now for diabetes?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.8 Did you stop taking medicines because of any of the following reason?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.9 There were no symptoms except raised sugar level</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.10 Medicines are costly</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.11 Medicines are not available</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Diabetes Mellitus**

<table>
<thead>
<tr>
<th>Question</th>
<th>Option 1</th>
<th>Option 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD 2.12 Do you have excessive thirst?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.13 Do you have excessive appetite?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.14 Are you passing frequent urine?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.15 Is your wound not healing properly?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.16 Is there any sudden loss of vision? (Decreased vision)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.17 Is there a family history of diabetes?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.18 Are you using any drugs now for diabetes?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.19 Did you stop taking medicines because of any of the following reason?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.20 There were no symptoms except raised sugar level</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.21 Medicines are costly</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CD 2.22 Medicines are not available</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Beneficiary Information**

- Name: [Name]
- DOB: [DOB]
- Gender: [Gender]
- Age: [Age]
- Mother: [Mother's Name]
- Father: [Father's Name]
- Spouse: [Spouse's Name]
- Address: [Address]
- Registration Date: [Date]
- Phone No.: [Phone Number]
- District: [District]
- Village: [Village]
- Post: [Post]
- PIN: [PIN]
- Aadhaar ID: [Aadhaar ID]

**Registration Counter**

- ANM Page
- Mother and Child Counter
- Lab Counter
- Chronic Disease Counter
- Chronic Questionnaire
- Chronic Disease Formats
- Pharmacists Counter

**Other Counters**

- Referral
- ANC Status
- ASHA
- ANM & SubCenter ASHA
- Van Registration
- Beneficiary History

**Start**
DOX-IN-BOX® TECHNOLOGY

Telemedicine technology that is built to thrive in remote areas, emphasizes general physician functionality, is easy to use and captures, stores and transmits vital signs.

Functionalities | BP • Steth • SpO₂ • Heart Rate • Temp • ENT + Skin Images • ECG • Blood Glucose

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HOW DIFFICULT IS IT TO ACHIEVE OUR TRYST WITH DESTINY?

- We can see change in our own life time
  - An Organizational Platform
  - A group of passionate people
  - A governance focused government
  - Committed and visionary political leadership

AND

IT COSTS LESS THAN 25 INR PER CAPITA
Thank You

www.hmri.in | health@hmriglobal.org
Hyderabad, AP India

eIndia award for “Most innovative PPP initiative” for HACC, Pune in Nov 2012

e World Awards 2011 for the category of “Best ICT Initiative in Improving Maternal Health”
The World Education Summit 2011 Jury Choice Best Public-Private Initiative in Vocational and Skills Training
NASSCOM and KPMG “Healthcare IT Awards 2011” under the “Best Technology Solution for Healthcare Inclusion” category
for its Telemedicine solution.

“Edelgive Social Innovation Honors 2010”- under “health & well being” category for the Telemedicine initiative.

“Nascom Social Innovation Honors 2010” – under the ICT-led innovation category by non-profit organisations for 104 Advice.

eIndiaeHealth Award 2009”- for Civil Society/Development Agency initiative for 104 Advice.

“Manthan South Asia 2008 Award”- for best e-content for health services.

12 January 2013
Hypertension
Diabetes mellitus
Defective vision
Epilepsy
Asthma
Tuberculosis
Malaria